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An analysis of the financial implications of high-impact versus low-impact communications in the United States Navy

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AN ANALYSIS OF THE FINANCIAL IMPLICATIONS
OF HIGH-IMPACT VERSUS LOW-IMPACT
COMMUNICATIONS IN THE
UNITED STATES NAVY

by

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- was actually responsible for greater comprehension.

The study develops these findings to demonstrate analytically that the Navy could reduce communications costs my millions of dollars annually by more forcefully adopting a Navy-wide policy of high-impact communications.

This is the first study to investigate and identify the specific costs associated with various writing styles. Therefore, it should serve as the bedrock for follow-on study efforts.

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An Analysis of the Financial Implications of High-Impact versus Low-Impact Communications in the United States Navy

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TABLE OF CONTENTS

I. INTRODUCTION

A. OVERVIEW

Everyone from company Chief Executive Officers to first-line supervisors acknowledges the importance of communication in the workplace. Study after study confirms that a typical manager spends anywhere from 60-75% of his day communicating. (Ref 1) Ironically, what managers do most is what they often are weakest in. Complaints about the quality of communication, particularly written communication, have come from all quarters in the private and public sector. Not only do language watchdogs like William Safire, Edwin Newman, and the National Council of Teachers of English Committee on Doublespeak complain about muddled writing and tongue-twisting euphemisms but also leaders in business and government have criticized the quality of written communication in the workplace.

B. MEASURES OF EFFECTIVENESS

Despite this concern about effective writing, measures of writing effectiveness in the workplace are relatively crude. For example, during the last 40 years simplistic readability formulas created by Rudolph Flesch, Robert Gunning, and a large number of imitators have been used to define effective written communication in both the private and public sectors. The federal government uses these formulas to determine the readability of federal regulations and military training manuals. Also, the formulas, particularly the Flesch Reading Ease formula, are used in states

that have passed Plain Language legislation to assess the readability of a whole range of consumer contracts. Even computer software packages like IBM's Writer's Workbench and Rightwriter use readability formulas to enable users to check the effectiveness of their documents.

However, researchers, particularly John Bormuth and Jack Selzer, have pointed out the significant shortcomings of the readability formulas. (Ref 2) Because most of the formulas measure only two variables--sentence length and number of syllables per word--their ability to determine a reader's ease in comprehending a document is highly suspect. In fact, John Bormuth has shown that the Flesch and Gunning formulas have only a .40 to .63 correlation with comprehension. (Ref 3) Comprehension is a far too complex activity to measure accurately using only two variables.

Recognizing the shortcomings of the readability formulas, writing consultants, journalists, a handful of academics, and practitioners in both the private and public sectors formed the "plain language movement." Plain language advocates have attempted to pinpoint what they believe to be components of effective written communications. Their premise is deceptively simple: effective writing is clear writing, and clear writing is governed by a set of linguistic and organizational standards that are not dependent on the communication situation. Much like Flesch and Gunning, the plain language advocates believe that short sentences and simple words help make a document readable.

But this group has tapped the research done in the last 20 years by linguists, cognitive psychologists, rhetoricians, and reading specialists. As a result they have expanded the variables they use to define clear writing to include

1. use of the active voice
2. close placement of subjects and predicates to achieve quick semantic closure
3. avoidance of nominalizations (verbs transformed into nouns)
4. position of qualifying modifiers

and a number of other stylistic and organizational variables.

Despite the plain language advocates' more complex and hence more realistic approach toward assessing readability, they still have a rather limited definition of effective writing. For them clarity is an absolute that in and of itself defines effectiveness. As long as certain linguistic guidelines are followed, the communication by definition will be clear and therefore effective. But is clarity a linguistic absolute that by definition translates into effective writing, or are there other factors that function as either necessary or secondary causes of effectiveness? For example, to what extent are decreased reading time, the psychological impact of the communication on the reader, the reader's attitude toward the writer, and the actual amount of information a reader can retain important factors in determining writing effectiveness. Also, do the factors that define communication effectiveness vary between the private and

public sectors, in different organizations with different cultures, and in different functional areas within an organization?

These issues have not been raised by plain language advocates; consequently, virtually no empirical research has been conducted within organizations to determine if the guidelines the plain language advocates champion lead to communication effectiveness. Because of this lack of research, professionals have been required to make "leaps of faith" about the value of specific writing strategies such as use of short sentences, active constructions, subject-verb-object word order, concrete, jargon-free language, and so on. In fact, these writing guidelines have been repeated so often by plain language advocates that they have acquired the ring of scientific authenticity without the hard research to prove their value. Moreover, these rules have found their way into articles in trade journals, management development programs, and even academic journals resulting in their increasing acceptance by professionals in both the private and public sectors. In fact, the naval Correspondence Manual (Ref 4) has adopted most of the plain language advocates' guidelines to define effective writing.

Furthermore, plain language advocates and managerial communication researchers in general have not examined the attributes readers will associate with writers who use these plain language rules and regulations. For example, will readers perceive writers who use these guidelines as precise, analytical

decision makers, or will they view them overly aggressive, rude, uncooperative, and threatening? In contrast, will writers who use a bureaucratic style (linguistic characteristics such as passive constructions, nominalizations, abstract language, etc.) be perceived by readers as hesitant, passive, muddled thinkers or will readers view them positively?

Managers need to be aware of the attributes readers ascribe to them as a result of their written communication style. Without some guidelines to follow, writers may be projecting an image that conflicts with the management style they have developed and thus possibly undercuts the effectiveness of their communication.

C. RESEARCH OBJECTIVES

This study will remove some of the fuzziness surrounding communication effectiveness through empirical research rather than mere speculation. However, before pinpointing the general research objectives this study will tackle, it is necessary to define the critical terminology that will be used to discuss communication effectiveness.

Critical Terminology: the following terms will be used throughout the study.

- Bottom Line: a statement at the beginning of the communication (usually the first paragraph) that specifically defines the purpose of the communication.

- Contract Sentence: a statement following the bottom line that outlines the major points that are going to be covered in the communication and the order in which they are to be covered.
- Semantic Closure: that point in a sentence where the reader has most of the necessary information to comprehend the sentence. Semantic closure usually occurs after the reader has processed the subject and predicate.
- High Impact Writing: a writing style that has the following characteristics: a bottom line, a contract sentence, short, simple sentences in subject-object-word order, concrete language, verbs in the active voice, short paragraphs, strategic use of headings and lists. These linguistic and organizational characteristics theoretically make a communication easier to read and to remember.
- Low Impact Writing: often called a bureaucratic style, a low impact document has the following characteristics: long compound, complex, and compound-complex sentences, long paragraphs, very few, if any, headings or lists, abstract language, verbs in the passive voice, the bottom line buried in the middle or at the end of the document, no contract sentence, extensive use of nominalizations. Theoretically, a low impact style is more difficult for readers to read and understand than a high impact one.

D. SUMMARY

Specifically, the study will attempt to answer the following questions about written communication effectiveness:

1. Is a communication written in a high-impact style easier to read than one written in a low-impact style?
2. Does the functional category of the reader affect the readability of the high and low impact documents?
3. Do readers take more or less time to read a high-impact communication than a low-impact one? What are the financial implications for this difference if indeed there are any?
4. Does the reader's functional category have an impact on reading time?
5. What attributes do readers ascribe to writers who use a high-impact and a low-impact style?
6. Do these attributes vary between functional categories of respondents?

Answers to these questions will enable professionals in the public sector to judge more accurately their own written communication effectiveness. Furthermore, these answers will help them better manage the writing of subordinates who write for their signature. Also, the study's results may allow managers to establish written communication guidelines that will enable the department, division, or organization to save reading time and thus free-up managers to perform their other duties. Finally,

this project's results should give managers an idea of the kind of image that is characteristic of high and low impact documents and the relative appropriateness of that image for their organization.

II. VALUE OF THE RESEARCH TO THE DEPARTMENT OF THE NAVY

A. OVERVIEW

The Navy Correspondence Manual (Ref 4, p.1-1) suggests that "we insist on fighting with modern equipment but settle for writing with outdated English." To "modernize" the writing style of the Navy, the manual explains in detail the characteristics of what in essence is a high-impact, bottom-line writing style and promotes its use. However, the manual offers neither empirical evidence nor sufficient analytical justification to support using a high-impact style. Furthermore, the manual's authors are probably unaware that the linguistic and stylistic factors that make up a high-impact style have not been field tested in the corporate, let alone the military, environment.

This study will provide the Department of the Navy (DON) with the empirical underpinnings to support (or disprove) the "religion" of a high-impact style as outlined in the Correspondence Manual. More importantly, this research will examine the following implications of the language guidelines promulgated in the manual:

1. Will naval personnel spend less time reading documents written in the high impact rather than the low impact style?
2. Will naval personnel perceive that they retained and comprehended more information presented in a high impact rather than a low impact style?

3. Will naval personnel better comprehend information presented in a high impact rather than a low impact style?
4. What attributes will readers of naval documents ascribe to writers and what affect will these attributions have on leadership? For example, will readers of the high impact document feel that the writer is a clear-thinking, no-nonsense decision maker; in contrast, will readers of the low-impact document regard the writer as an imprecise, muddled bureaucrat?

These implications have financial and leadership repercussions to DON personnel. The next section examines these repercussions in greater detail.

B. FINANCIAL IMPLICATIONS

Significant financial implications may result from DON personnel using a high or low impact style. Navy personnel, particularly those at the Pentagon and in other shore assignments, spend a large part of their time reading various types of documents. Depending on the relative importance of the document, they are read very carefully, read at normal speed, skimmed, or read in a piecemeal manner. But no matter how the document is read, reading takes time and thus costs money. In essence it is another factor that must be considered in the cost of doing business, albeit an often overlooked factor.

Consequently, any writing strategy that will enable DON personnel to cut reading time by even as little as 5-10% would result in significant time and thus financial savings to DON by

freeing-up personnel to attend to other managerial responsibilities. If indeed documents written in a high-impact style result in readers being able to process documents significantly faster, this information would provide Navy leadership a powerful rationale for insisting that DON communications follow the guidelines outlined in the Correspondence Manual.

Although the financial costs of reading and rereading a communication can be significant, the costs incurred to correct a misunderstood communication or to un-do or repair damage resulting from a misunderstood communication can be even more significant. Records from various safety centers are no doubt replete with examples to support this claim. Consequently, determining whether a high-impact style results in better document comprehension than a low-impact, bureaucratic style can have significant financial consequences to DON. These costs are extremely difficult to determine because of the human relations impact that misunderstood communications can have.

C. IMAGE AND LEADERSHIP STYLE

Projecting the appropriate image for a given situation is one key to managerial effectiveness. An important factor in projecting the correct image is communication style. Every day Naval managers find themselves in a variety of communication situations, many of which call for managers to write to readers both in and out of military service as well as to readers above and below them in the chain of command. To effectively manage

this wide range of scenarios, writers must be able to convey an image appropriate to their reading audience by being able to engineer style to fit the situation.

Unfortunately, most naval managers are not aware of the connection between their written communication style and the effect this style has on readers' perception of them both up and down the chain of command. Because of this unawareness, officers may inadvertently project, through using low-impact style, a weak, indecisive image that may undercut their ability to successfully complete a task. For example, an action officer who conveys a passive image in his point papers may be perceived as lacking confidence in his position or conviction in his recommendations. His superiors may feel that he is either insufficiently motivated to do the job, has done incomplete staff work, or is incapable of fulfilling the requirements of his current job. Worst of all, he may project an image that indicates he is unable to assume positions of increased responsibility.

Similarly, a reporting senior who writes weak fitness reports and performance evaluations can have a wide-ranging negative impact on the careers of those under his charge. Writers of these documents should convey to screening, selection and promotion boards an image of strong, positive leadership so that the boards perceive the reporting senior as a concerned, no-nonsense individual with the conviction to support his deserving crew members. The reporting senior should also be viewed as a

sound communicator able to convey his thoughts in a clear, concise, and appropriate manner. The intent here is to suggest that a clear signal, (i.e., promote/do not promote, select/do not select) is sent and received by the correct people.

Inability to project the proper image and deliver the appropriate message can confuse review boards, like those noted above. In the absence of "the appropriate message," boards will have to assume that either 1) the reporting senior is not a strong leader 2) he is not confident in the ability of his people 3) the individual reported on is not adequately qualified for promotion. None of these perceptions bodes well for the individual or for the writer.

D. SUMMARY

In summary, the attributes readers ascribe to writers of high and low impact communications can affect writers' ability to manage their people and alter the leadership perception peers and subordinates have of them. Writers need to be able to anticipate the kind of impact on reader perception that various styles have and be able to choose the appropriate style for the communication situation.

III. REVIEW OF LITERATURE

A. OVERVIEW

The business environments in which professionals communicate have become increasingly specialized in the last three decades. Because today's public and private sector managers have to process ever-increasing amounts of information, the communication skills they need to survive in business, industry, the government, and the military have significantly changed. Unfortunately, research on written communication effectiveness has lagged behind the rapid changes in the work environment. In fact, the discipline of managerial communications is still in its infancy. As a result, research examining effective written communication in the workplace is sketchy.

This chapter will briefly review the research related to the questions raised in the **Research Objectives** section. Specifically, this chapter will focus on research in readability and comprehension, reading cost, and communication style and image.

B. READABILITY AND COMPREHENSION

Readability formulas have been the end product of much of the research done in the business and managerial communications fields. In fact, researchers have developed over 135 formulas that attempt to predict the relative difficulty readers have in understanding a message. (Ref 5) For the most part derived from

regression equations, these formulas supposedly identify language factors which cause significant differences in a reader's ability to understand a document.

As mentioned in the previous chapter, two factors dominate almost all formulas: the word or semantic factor and the sentence or syntactic factor. Most formulas measure semantic difficulty either by counting the number of syllables per word or by counting the number of words that appear on a common wordlist, such as the Dale List of Familiar Words. Sentence difficulty is generally measured by sentence length.

However, reading experts and several management communication researchers have recognized that sentence and word length are not the only variables, or even the most important ones, that determine whether a message is difficult to read.(Ref 6) George Klare, one of the foremost experts on readability, admits that "reading is too complex for any formula to predict readability with perfect accuracy". (Ref 7) The research of R. F. Lockman supports Klare's claim. Lockman ranked nine sets of instructions according to the Flesch formula and then had 171 naval midshipmen rank those instructions on their ability to comprehend them. Lockwood found a -0.65 correlation between the Flesch and the midshipmen rankings of the set of instructions. (Ref 8) Moreover, in a 1970 study conducted by Schwartz, Sparkman, and Deese, Flesch readability scores indicated that passages written by the novelist James Gould Cozzens, who is widely recognized as

having a turgid, impenetrable prose style, were rated as being easier to read than passages from popular, easy-to-read magazines. (Ref 9)

Readability formulas fail at measuring comprehension for a number of reasons. First, as E.D. Hirsch has pointed out, reading is a complex forward and backward process requiring use of both short term and long term memory. (Ref 10) When a businessperson is moving forward through a document, he is storing linguistic structures in short-term memory. However, a typical reader can retain only 6 ± 2 segments of information. (Ref 11) Consequently, readers must transfer information from short term to long term memory to make room for more new information. Moreover, the information most easily and accurately transferred has linguistic characteristics such as close placement of subjects and verbs, subject-verb-object word order, active constructions, and so on that insure quick semantic closure.

However, readers don't store information verbatim. They develop abstract summations of what they've read to store in long-term memory. To develop these abstract representations, readers review literally in microseconds the linguistic unit they've just read (a phrase or a clause), find an appropriate abstract summation of the unit, and finally store the summation in abstract memory. (Ref 12)

Although the variables the popular readability formulas measure--sentence and word length--help reduce the demands on readers' short-term memory, these two variables can't predict if

readers are able to reach quick semantic closure when processing a phrase or a clause let alone see the relationships or perceive the logic between sentences, groups of sentences, or paragraphs that have been transferred into long-term memory. In fact, these formulas incorrectly assume that the documents they are measuring are "well composed" and coherent. Ironically, coherence is one of the major determinants of whether a document is readable.

Furthermore, the readability formulas imply that all readers will respond to the document in the same way. The formulas don't take into account the different educational levels of the readers, their interest in the content of the document, the familiarity they have with the subject matter, the amount of time they have to read the document, their motivation to read the document, and a large number of other reader-oriented variables. Consequently, as Walter Kintsch and Douglas Vipond have pointed out, readability does not exist in a document but is the result of a reader's interaction with a specific document in a particular organizational environment. (Ref 13) Consequently, this study steers clear of readability formulas and, instead, has focused on readers' interaction with documents that have significantly different linguistic characteristics.

Finally, designers of readability formulas and their proponents haven't made clear what exactly they mean by readability. Most communication experts see readability as the reader's ability to comprehend a document because of certain stylistic

features that the document possesses. But the purveyors of the formulas often refer to the interest level of the document, which is often only a secondary factor in determining readability.

A readability instrument called the "Cloze Procedure" does exist that effectively measures the readability of a document. Developed by Wilson Taylor in the early 1950's, the Cloze Procedure requires readers to interact with a document in an attempt to predict which word will come next. Outlined below is how the procedure works:

1. An equal number of words from a passage is deleted. In most cloze procedures every fifth or sixth word is left out.

2. Each deleted word is replaced with a standard length blank. The blanks are of equal length so that length won't effect reader's response to the deleted words.

3. Readers are given copies of the reproduced passages and are asked to write in the blanks what the missing words should be.

4. Readers scores are determined by the percentage of blanks they fill in correctly. A passage with a mean score of 25% is more difficult to read than one with a mean of 35%. (Ref 14)

To correctly predict a high percentage of missing words, readers must notice linguistic patterns within phrases and sentences. By filling in the missing word, readers are in effect semantically "closing off" patterns and thus perceiving relationships between phrases, sentences, and groups of sentences. Consequently, the cloze process indirectly takes into account the relative coherence of a document as well as the relative predictability of the document's linguistic structures.

Furthermore, the cloze procedure also takes into account the background and interest of the reader. For example, if the readers' background information is fairly extensive, he will be better able to predict patterns because he may be familiar with the specialized language that is in the document. Also, if the content of the document has high interest value to the reader, he may be willing to read slowly and thus work hard to understand the document's message.

In summary the chief advantage of the cloze procedure over readability formulas is that it indirectly assesses semantic closure and coherence and enables readers to interact with the document. The procedure's chief disadvantage is that it is time consuming and thus very costly to use. This disadvantage explains why the cloze procedure was not used in this research study.

C. READING COSTS

Research into the cost of reading and generating (the thinking, writing, and revising processes) documents is relatively sketchy. IBM, however, estimated in the early 1980s that the average cost of the average one page memo or letter written in their corporation was over $10. (Ref 15) That figure no doubt has increased in 1987 to about $13 to $14 per one page document.

The General Services Division (GSD) of IBM monitored the number of documents sent out by its divisional headquarter's staff. Their communication auditors discovered that the number exceeded 9 million per year. (Ref 16) Obviously, some of these

documents were multiple copies. But even if we assume that 40% of the documents were individually written and we use the old figure of $10 per document preparation cost, the cost of preparing these documents in one division alone amounted to over $36 million dollars per year. If one considers the number of documents that the Navy alone generates at the Pentagon in Washington, the cost involved in document generation undoubtedly is staggering.

An additional cost of communication that is often overlooked is reading time. Managers can spend anywhere from 20%-60% of their time reading documents. (Ref 17) And from all indications this time will increase because of the impact of new technology in increasing the amount of information that crosses a manager's desk. The ability to decrease reading time by even 10% will result in a significant cost savings to organizations.

D. COMMUNICATION STYLE AND IMAGE

An essential ingredient to corporate success is a manger's ability to coordinate people and resources to meet the demands created by the internal organizational environment and the external environment. Basically, this coordination is achieved through choosing the correct communication channel (memos and reports, phone conversations, briefs, small group meetings, etc.) and effectively communicating the message content through that channel. But, efficient communication of message content is not the only important element in the coordination of organizational work. Equally important is harmonious managerial effort toward the accomplishment of organizational goals. An important factor

in achieving this harmonious effort is the image managers project to superiors, peers, subordinates, and stakeholders in the organization as a result of their communication style.

A neglected area of written managerial communication research is the image writers project as a result of the written communication style they use. Research in how a writer's communication style affects his image is important for several reasons:

1. writers can ill afford to project an image that conflicts with the image they project in their verbal and non-verbal communications. The dissonance created by such image incongruity can undermine the harmony needed to coordinate managerial work and thus affect managerial effectiveness.
2. writers need often to project an image that conveys leadership qualities; consequently, they need to know which writing style (the combination of linguistic and organizational features) may produce this perception in readers.

Although no empirical research exists on the relationship between written communication style and the reader's perception or image of the writer as a result of that style, researchers in organizational communication have made some inroads in understanding the relationship between communication style in general (verbal and non-verbal) and image. The following section briefly summarizes this research.

Norton's work on verbal and non-verbal communicator style provides a valuable starting point in thinking about the image a writer can project as a result of stylistic manipulation. Norton provides a typology of communicator styles that serves as a useful way of discussing and analyzing written communication style. Furthermore, Norton has established that communicator style, hence image, can be manipulated by the message sender to achieve a desired end in the message receiver. (Ref 18) In all likelihood the same is true of written communications: writers can manipulate the style they use to create a desired image of themselves in readers of the communication.

Watzlawick, Beavin, and Jackson have also done work that is applicable to the relationship between written communication style and image. They contend that "every communication has a content (what the communication is about) and relationship (how the communication is perceived by the audience) aspect such that the latter classifies the former and is therefore a metacommunication." (Ref 19) In essence, these researchers argue that the style of communication--the way that the content of the message is conveyed--provides as much information to the receiver of the message as the content of the message itself. In fact, communicator style is a mode of communication in and of itself (a metacommunication) that creates in the message receiver an image of the communicator that affects how the receiver reacts to the message's content. Consequently, message content, style, and receiver image or perception of the communicator all interact in

various ways to shape how the receiver will respond to the communication. In essence, message receivers do not separate message content from message style and image.

Both Simon and Bednar have done research trying to link communicator style with managerial effectiveness. Simon found that successful supervisors used a communication style that was perceived by subordinates as empathetic, open, and persuasive rather than autocratic. (Ref 20) This research implies that writers need to create the same perceptions (or image) in their readers to be viewed as a successful supervisor.

David Bednar's study, though, suggests that the relationship between communicator style and managerial effectiveness is much more complicated. He found that managers perceived by subordinates as "outstanding" were also seen as "precise" and strictly accurate in their communication style. Bednar goes on to show that the type of communication style that results in the perception of "outstanding" or "definitely above average" managerial performance varies between managers and subordinates, managers, and superiors, and managers and peers. For example, managers' superiors associated "open," "animated," and "self-disclosing" communicator stylistic characteristics with "outstanding" and "definitely above average" subordinate managerial performance. (Ref 21)

Bednar's study shows that the perception or image of managerial effectiveness that superiors, subordinates, and peers have of a manager's communication style varies according to the

organizational context and setting. Moreover, effective managers must manipulate communication style and hence their image to meet the various situational demands of superiors, subordinates, and peers.

This organizational communication research also indicates that writers must be able to manipulate their writing style to meet the situational demands of their readers. However, until writers have a sense of the kind of image they project when using, say, a high or low impact style, their ability to manipulate their reader's image of them will be mere guesswork.

IV. FACTORS AFFECTING THE STUDY

A. FACTORS AFFECTING RESULTS

This chapter assesses factors that may cause statistically significant differences in respondent reaction to the survey conducted in the course of this research study. For example, environmental factors, amount of experience, and other biases may interact in various combinations to affect readers' perceptions of the high and low impact styles and to influence even reading time and comprehension. The impact of these variables is discussed below.

B. FACTORS INFLUENCING READER PERCEPTION

1. Environmental

Significant differences may occur between the perceptions of personnel stationed afloat versus those stationed ashore. Respondents from the shore-based commands may feel that the high-impact style conveys to the reader more positive leadership traits than those respondents assigned to afloat billets. Additionally, respondents exposed to the interactions of a major staff, such as OPNAV in Washington, D. C., will in all likelihood believe that a high-impact style creates a more favorable perception of the writer in the reader than a low impact style. However, groups that frequently deal with communications in large bureaucracies may prefer the low-impact style communication and believe that the style conveys positive leadership traits.

2. Experiential

Senior officers should ascribe positive values to the high-impact rather than the low-impact style. These officers have experienced the strong emphasis that senior Navy management has placed on this communication style over the last 5 years. In contrast, junior officers may be unaware of or indifferent to the impact writing styles may have on readers. These officers haven't been thoroughly indoctrinated to the stylistic guidelines in the Navy Correspondence Manual (Ref 4), nor have they worked in environments where they have had to write and read many types of documents, particularly politically sensitive ones.

3. Professional Community

Membership in specific warfare or staff communities may affect the attributes respondents ascribed to the author of the high and low impact communications. Although it is difficult to predict how different communities will perceive the high and low impact styles, respondents from communities that a) provide information rather than perform specific tasks, b) deal with controversial "political" or legal issues or, c) habitually use a bureaucratic style may ascribe positive attributes to the low-impact style. In contrast, respondents from communities that are used to short reaction times or compressed work schedules will favor the high-impact style.

The data gathered in this study should show significant differences in the attributes that various respondent groups ascribe to authors of high and low impact documents. These differences should be attributable,in large part, to the three factors discussed above.

C. FACTORS INFLUENCING READING TIME AND COMPREHENSION

Other major concerns in this study are readability and comprehension. These variables are important because they form the basis for analyzing the potential financial implications of using the high-impact style over the traditional low-impact, bureaucratic style. The high-impact communication should

- take less time to read
- be perceived by readers as more readable
- result in better message comprehension

1. Environmental

Significant differences may exist in reading time, a reader's perceptions of a writer, or in comprehension as a result of environmental factors. For example, members of afloat or ashore commands who, by routine, read and process several documents a day may take less time to read a document than another service member who's job requires much less reading. Respondents from commands who process requests for action or receive claims for payment from several sources may have developed above average comprehension skills. These groups should take

less time to read the high impact style, should demonstrate better comprehension, and should perceive this style as more readable.

2. Experiential

Senior Officers should find the high impact style superior to the low impact style. This group should perceive the high impact style more readable because of their increased time in service and, therefore, greater exposure to various styles of writing. The characteristics and logical pattern of the high impact style, as noted earlier, should mesh readily with the type of positive leadership traits and style adopted by many successful senior Navy officials. For the same reasons, seniors should find the high impact style more comprehendible. However, it is not clear that experience will be a prime determinant of shorter reading time.

3. Professional Community

Membership in a specific community may affect how readers perceive the two writing styles in question, the time it takes to read a communication, or the amount of material comprehended. Members who routinely process lengthy, legal-type documents may find the low impact style more to their liking, while those who have a greater variety of tasks to perform daily may prefer the high-impact style. Service members who have had additional specialized education, as a prerequisite to entry in their warfare community, may find the high impact style more readable and comprehendible because its format parallels

documents with which they are familiar. As with experience, their is no empirical evidence to suggest that a particular professional community will demonstrate a shorter reading time for one style over another.

D. SUMMARY

This chapter provided a brief overview of the respondent factors that on their own or in combination may cause members of different respondent categories to ascribe different attributes to the writer of the high and low impact communication. Furthermore, these factors may also affect reading time, perception of readability, and the comprehension of the high and low impact documents. The next section describes, in detail, how this study will be conducted to gather sufficient data to answer the study's basic research questions and to assess the impact that the factors described above have on the data.

V. DESIGN OF STUDY

A. OVERVIEW

Nearly 500 Naval Officers and Chief Petty Officers were targeted for survey from a cross-section of Naval personnel to determine if:

1. reading time, perception of comprehension, and actual comprehension varied between the high and low impact documents;
2. traits respondents attributed to the writers of the high and low impact documents varied.

The survey instrument described below was developed to answer these questions.

B. TEST INSTRUMENT

The following paragraphs discuss the make-up of the survey instrument.

The survey instrument consisted of:

- a management case
- a high and low impact memo report in response to the case
- a set of questions measuring reading time,perception of comprehension, and actual comprehension
- a 20 item reader response instrument of bipolar adjectives on a seven (7) point Likert scale
- background information questions

1. General Management Case

A case outlining a general management rather than a Navy specific situation was chosen to ensure that survey participant bias was kept to a minimum. The case describes a potential productivity and morale problem in a business office department of a medium-size hospital (see Appendix A for a copy of the management case). A company consultant visited the business office to assess the overall productivity of the office. He conveyed his findings in a memo report to the office manager. It is important to note that the consultant had only an advisory role--the office manager did not have to abide by his recommendations. Consequently, the memo would be viewed by the office manager as persuasive but not sensitive. To reduce the possibility of skewing survey results, no Navy physicians or Medical Service Corps personnel were asked to participate in the survey.

2. Memo Reports

Two memo reports were written to answer the research questions outlined in the Overview section (see Appendix B for a copy of the two memo reports). One report was written in a high-impact style with a bottom-line pattern of organization. The other report was written in a low-impact style with the bottom line buried in the last paragraph. The high-impact report had the following linguistic and organizational variables which functioned as independent variables for this study:

- The bottom-line (the purpose of the report) stated in the first paragraph;
- A contract sentence (stating what major points the report will cover) immediately following the bottom line;
- Simple sentences in subject-verb-object word order;
- Subjects and verbs as close to each other as possible;
- Active verbs;
- Concrete, Anglo-Saxon words;
- Short paragraphs, headings, and lists;
- First and second person personal pronouns.

The low-impact memo report had the following linguistic and organizational variables which also functioned as independent variables in this study:

- Bottom-line buried in the last paragraph;
- No contract sentence;
- Complex and compound-complex sentences which delayed semantic closure;
- Passive verbs with implied subjects;
- Abstract, Latinate words;
- Long paragraphs without headings or lists;
- No personal pronouns.

Both the high and low impact memo reports were well written; consequently, survey results would not be skewed because one style was better executed than the other. Particular care was taken to

insure that the low impact memo report was well composed. Furthermore, the content of both reports was the same to obtain accurate measurements of comprehension.

The variables affecting reader response in both memo reports are strictly linguistic and organizational. The variables should affect the relative quickness of readers to achieve semantic closure and thus increase reading speed and aid in comprehension. Also, if Watzlawick, Beavin, and Jackson's research on communicator style is correct, these variables should be one of the major determinants of attributes readers ascribed to the writer of the messages.

3. Comprehension Questions

Comprehension questions were included as part of the survey instrument to determine if

a. respondents reported statistically significant differences in reading time between the high and low impact memo reports;

b. respondents felt they needed to reread the low impact memo report more often than the high impact report;

c. respondents reported statistically significant differences in their perception of information retained in the high impact versus the low impact report;

d. respondents better comprehended information in the high or low impact memo reports.

In addition to three questions dealing with reading time and perception of comprehension, seven questions were included in the comprehension section of the test instrument. These questions

called on respondents to remember essential information conveyed in the memo report (see appendix C for a copy of the comprehension questions).

The results of this section of the test instrument are used in Section VII and Section IX to examine the financial implications of reading a high or low impact document.

4. Reader Response Instrument

A reader response instrument made up of 20 bipolar adjectives on a 7 point Likert scale was designed to catalogue the various perceptions survey participants ascribed to the "authors" of the two different memo reports. The reader response instrument is presented in appendix D.

The 20 adjectives were carefully chosen to represent a typical range of attributes respondents could ascribe to the writer of the memo reports. Also, Norton's articles on communicator style and several articles on attribution theory were examined to provide help in choosing the adjectives.

5. Background Information Questions

The last section of the survey instrument contains a background information questionnaire (see Appendix E) which provided data on a wide range of moderating variables including

- Age
- Sex
- Education
- Educational Specialty
- Managerial Experience
- Supervisory Activity
- Functional Work Area
- Method of Service Entry

- Working Environment
- Job Description
- Career History
- Years of Service
- Specialty Designator
- Interaction with Seniors
- Breakdown of Normal Communication Activity

C. INSTRUMENT PRETEST

To assess the relative effectiveness of the test instrument, a pre-test was conducted on first quarter, Naval Postgraduate School students newly enrolled in the Management Communications course (MN-3333). Preliminary review of pre-test results and administration procedures proved that the survey instrument was workable. After the pre-test, surveys were conducted on various operational fleet and supporting staff units, as well as, members of the staff of the Chief of Naval Operations (CNO).

D. SURVEY RESPONDENTS

Respondents participated voluntarily in the survey to reduce the possibility of non-serious responses. Additionally, participants were informed that their response would be kept confidential.

Two primary groups of respondents were surveyed in this study: junior to lower field-grade level Naval Officers and Chief Petty Officers (CPOs). These groups were chosen because they are responsible for generating, reviewing, reading, and making decisions on the majority of communications within the Navy. Specific command types were chosen for survey to ensure

Officers and CPOs with varied backgrounds were included in the study. Tables 5.1, 5.2, and 5.3 display the functional and warfare specialty areas from which survey participants were drawn and provide a breakdown of the number of officer and enlisted survey participants.

TABLE 5.1

PARTICIPANT FREQUENCY BY FUNCTIONAL AREA

Functional Area	# in Survey	% of Survey
Surface Forces	143	38.3
Aviation Forces	20	5.3
Submarine Forces	67	17.9
Supply Corps	17	4.5
Chaplain Corps	15	4.1
OPNAV Staff	82	21.9
NPS Students	30	8.0
Totals	374	100.0

TABLE 5.2

BREAKDOWN OF OFFICERS AND ENLISTED PARTICIPANTS BY FUNCTIONAL AREA

Functional Area	# in Survey		% of Group	
	Officers	Enlisted	Officers	Enlisted
Surface Forces	69	74	48	52
Aviation Forces	18	2	90	10
Submarine Forces	35	32	52	48
Supply Corps	15	2	88	12
Chaplain Corps	14	1	93	7
OPNAV Staff	74	8	90	10
NPS Students	30	0	100	0
Totals	255	119	68	32

TABLE 5.3

BREAKDOWN OF OFFICER PARTICIPANTS BY FUNCTIONAL LINE/STAFF DESIGNATOR

Designator	# in Survey	% of Survey
General Unrestricted Line	6	2.4
Surface Warfare	74	29.3
Aviation Warfare	43	17.0
Submarine Warfare	47	18.5
Supply Corps	36	14.2
Chaplain Corps	14	5.5
Intelligence Corps	6	2.4
Other	18	7.1
Missing Data	11	3.6
Totals	255	100.0

Survey groups were chosen to provide a representative cross-section of the major warfare community specialists. Also, they were surveyed to provide sufficient data to determine if significant differences regarding communication effectiveness exist as a result of language custom bias.

There was no reason to assume that perceptions of communication effectiveness would vary as a function of location (i.e., East versus West Coast). Therefore, because of proximity to Naval Postgraduate School, only operational units from CINCPACFLEET participated in the survey.

Segments of the afloat support staff were also surveyed. This group was chosen since it represents a large number of Naval personnel who communicate within their own professional communities as well as across warfare community lines. To canvas this

group, representatives from the Naval Supply Center, San Diego, its subordinate commands, and elements of the Chaplain Corps were surveyed. In all, this group provided responses from 29 Officers and 3 CPOs.

The last group sampled was the CNOs Staff (OPNAV). Surveying personnel serving in OPNAV billets was essential to evaluate the effect that this large group that operates in a politically sensitive communications environment would have on survey results. This group was considerably senior in breadth of experience and time in service compared to the other groups that participated in the study. This group was also segmented to include members from the major warfare communities. Also, service members from the intelligence specialty area were surveyed because success in this career path depends in large part on evaluating and responding to communications. Overall, this group provided 74 Officer and 8 CPO responses. Responses from other staff communities were not received in time to be included in the survey results.

A large number of participants and commands were surveyed to ensure that there would be significant sample size to apply standard statistical evaluation techniques.

E. EXPERIMENTAL SETUP

Survey participants were given a one-page case outlining the office management situation discussed previously. Respondents from each warfare area or staff group were divided into two

groups. Each group read the same management situation and a memo report in response to that situation. Although the content of the memo reports was the same, the style and pattern of organization were different.

One group read a report written in a high impact style with the bottom-line stated in the first paragraph. The second group read a report written in a low-impact style with the bottom-line buried in the middle of the last paragraph. It is important to reiterate that both reports were well written. Linguistic, syntactic and organizational variables were manipulated to determine their impact on comprehension, perception of comprehension, and the readers' perception of the report's writer.

All survey respondents received the same instructions on how to complete the survey and followed the steps listed below:

1. They were asked to read the scenario so that they would be familiar with the management situation.

2. They were then asked to read the report memo response the way they would normally read a communication of this type. Also, they were asked to time how long it took them to read the report.

3. They filled out the comprehension section of the survey. Respondents were told not to reread the memo report prior to answering the comprehension questions to help insure the instrument would measure initial comprehension.

4. Respondents filled out the 20 item Reader Response Instrument that uses a seven point Likert scale.

5. Respondents filled out a Background Information Questionnaire that provided data on a wide range of moderating variables.

F. DATA COLLECTION

Two field trips were taken to brief survey participants on survey procedures and to collect survey data. One trip was to San Diego California to survey operational and fleet support units, while the second was taken to Washington D. C. to survey members of the OPNAV Staff. After collection, these data were coded, entered into a statistical model, and evaluated.

G. METHODS OF ANALYSIS

Statistical Package for the Social Sciences ($SPSS^X$) (Ref22) was the primary statistical tool used to analyze survey data. Frequency tables with mean, median, and modal statistics were used to summarize discrete descriptive variables while condescriptive analysis was employed to evaluate continuous variables. Bivariate analysis employed T-tests for continuous value variables and crosstabulation tables for discrete range variables. Multivariate analysis was conducted using crosstabulation tables for discrete variables, while analysis of variance (ANOVA) was performed on continuous range variables in the survey. These techniques accounted for the majority of statistical manipulation undertaken in the analysis of responses.

VI. RESULTS OF THE SURVEY

A. OVERVIEW

This section summarizes in statistical form the background information data gathered from survey respondents. It also discusses any anomalies in respondent demographics that may have an impact on the analysis of data.

As noted in section V, Statistical Package for the Social Sciences ($SPSS^X$) was the primary statistical tool used for data reduction and analysis. It proved useful, effective, and easy to manipulate.

B. SURVEY RESULTS

1. Survey Response Rate

Respondents returned 374 of the 498 surveys distributed to the various San Diego and Pentagon based commands. This represented a 75% return rate. Afloat units had a return rate of 82%, while shore based units returned 46% of the survey forms. This excellent response provided adequate data in virtually all demographic areas to arrive at conclusions that would satisfy the requirements of rigid statistical analysis. In fact, this healthy return rate provided over 21,000 data points for reduction and analysis. Forty-six additional survey questionnaires were received after data reduction was completed. If included, the response rate would increase to 84.3%.

2. Equal Return Of Test Instrument

Survey instruments containing the high and low impact memo reports were returned in equal number. One hundred and eight-six (186) of the surveys returned were in response to the high-impact memo report, while 188 surveys were in response to the low-impact report. Consequently, analytical and statistical problems stemming from unbalanced returns of both styles were avoided.

3. Location

Three hundred and eighteen (318) survey forms were left in the San Diego, California area for afloat units and Fleet Support personnel to complete, while 180 surveys were left with points of contact in six offices of the Chief of Naval Operations' staff (OPNAV). The 374 surveys returned came from the following areas:

- Afloat Units 67%
- OPNAV 22%
- Fleet Support Units 11%

Therefore, 67% of the responses came from afloat units and 33% from the shore or staff establishments.

It was interesting to note that only 12% of those currently serving in afloat billets had previous Washington D. C. experience.

4. Gender

Ninety-six percent (96%) of the survey respondents were male, four percent (4%) were female. This unequal mix was not problematic since gender did not play a role in analysis of comprehension and reader perception of message author.

5. Age Group

The average age of the survey respondent was around 30, which is slightly higher than the age composition of the Navy in general. An age breakdown of respondents is listed below:

<30	33%
31-40	51%
41-50	15%
51>	01%

6. Educational Background

The educational level of respondents was expected to be high because the survey targeted officers who generally have a minimum of a college education prior to commissioning and chief petty officers (CPOs) who by virtue of their age and experience often seek additional education. Listed below is a breakdown of the respondents' educational background:

High School	14.0%
Some college	11.5%
College Degree	41.7%
Some Graduate Work	9.1%
Master's Degree	23.3%

7. Area of College Training

The survey questionnaire also asked respondents to note the area in which they received their college degree. As might be expected of those entering Naval service, the data revealed a high percentage (43.6%) of respondents received most of their college training in engineering and the hard sciences. A breakdown by academic area follows:

- Non Applicable 22.5%
- Business 15.9%
- Humanities 7.2%
- Engineering 22.7%
- Sciences 19.8%
- Social Sciences 7.5%
- Education 3.0%

8. Mode of Entry Into Naval Service

Thirty-two percent (32%) of the respondents enlisted in the Navy. The remaining 68% entered the service through one of the various "officer pipeline" programs. The distribution of officer respondents, by entry mode, mirrors the way Naval officers typically enter the service. The greatest percentage (36.2%) of officer respondents entered service through officer candidate school. ROTC was the mode of entry for 22.8% of survey respondents. The Naval Academy accounted for 23.6% of officer respondents. Finally, less common commissioning programs was the mode of entry for 16.9% of the respondents.

9. Years of Service

Because the surveys were targeted at officers and CPOs, the number of years of service for the average respondent was anticipated to be above the norm for all Navy personnel. The median and modal number of years of service placed the typical respondent in the 11-16 years of service group while the average time in the Navy was roughly at 9-10 years. Notably, 83% of the respondents had completed their first enlistment or tour of duty. This fact is significant because it meant that most respondents had been in service since the revised Navy Correspondence Manual (Ref 4) had been published. Consequently, respondents should be familiar with the manual's effective communication guidelines as well as having been exposed to superiors who promoted the bottom line, high impact style of writing the Correspondence Manual promulgates.

10. Rank

The rank of the survey respondents broke down as follows:

Captains	4.0%
Commanders	13.7%
Lt. Commanders	12.9%
Lieutenants	26.5%
Lieutenants JG	7.0%
Ensigns	6.1%
Chief Petty Officers	26.2%
Others	3.5%

Approximately ninety percent of the responses from enlisted members came from CPOs.

11. Specialty Designator

Data was collected to determine whether respondents came from line or staff communities. Officers were asked to specify the warfare specialty area designator they were a member of. While not specifically the subject of analysis in this thesis, this information could prove useful in subsequent analysis. Roughly 60% of those who responded had designators indicating that they were line officers, while the remaining 40% belonged to the various staff communities.

12. Managerial Experience

Because of the large number of officer and CPO respondents with higher than average time in the service, years of managerial experience was expected to be high. The modal range of managerial experience was 6-10 years, while the mean was a bit more than 12 years. Only 4% of the survey group indicated that they had no managerial experience.

13. Number of People Supervised

The most frequently checked (28.8%) range of number of people supervised by survey respondents was 11-25. Surprisingly, over 17% of those surveyed currently had no one under their supervision.

14. Contact with Supervisors

The survey results in this area produced no surprises. The overwhelming majority of respondents (58.8%) indicated that they had a great deal of daily contact with their immediate

supervisors. Over 67% of respondents reported a great deal of weekly contact with immediate superiors. Not surprisingly, a significantly smaller percentage of respondents (7.5% and 21.7% respectively) reported a great deal of daily and weekly contact with supervisors senior to their boss.

15. Communication Channels

The survey evaluated the communication channels used by the typical respondent. This evaluation ensured that respondents had been required to write enough on the job so that their response to the writing styles in the test instrument would have some experiential validity to them. The table below breaks out the communication channels used by various survey respondent groups and the mean percentage of time devoted to these channels during a typical week.

TABLE 6.1

MEAN PERCENTAGE OF TIME DEVOTED TO VARIOUS COMMUNICATION CHANNELS BY RESPONDENT GROUP

Channel/Group	All	All Officers	Afloat Officers	Washington Officers	All Enlisted
Written	17.0	19.0	16.4	21.3	12.3
Telephone	17.2	18.2	14.1	22.5	14.2
Staff Meeting	8.2	9.4	11.0	9.5	5.3
Briefing	10.6	9.6	9.5	10.1	13.2
Informal Discussion	36.0	33.6	37.5	29.5	41.5
Other	11.0	10.2	11.5	8.1	13.5
Total(percent)	100.0	100.0	100.0	100.0	100.0

As expected, the survey showed that officers in general devote a greater percentage of their time to written communications (reading and writing) than do enlisted personnel. Also, those respondents in Pentagon billets use written communications significantly more than do other groups. An interesting note was that the informal discussion category was the predominant communication channel used by all survey groups while staff meetings and formal briefings were the least used channels.

C. SUMMARY

This chapter reported the demographic data obtained from the Background Information section of the test instrument. The data reveals that the survey sample is a typical cross section of the "professional" Navy. As a group, survey respondents do not reflect any particular anomalies that would skew survey results.

The next chapter analyzes several of the key moderating variables described in this chapter to determine whether or not significant differences exist in reading time, perception of comprehension, and actual comprehension between respondents who read the high and the low impact memo report.

VII. ANALYSIS OF TIME TO READ, PERCEPTIONS, AND COMPREHENSION

A. OVERVIEW

The next two sections analyze the key dependent variables addressed in the survey. They emphasize those areas in which statistically significant differences exist between writing styles in either perceptions of the two written communication styles employed in the survey or in those variables, such as "time to read," that can be measured in more discrete terms. Where noteworthy, the analysis discusses each dependent variable as it applies to:

1. the survey sample as a whole,
2. the population of officers in the sample
3. officers having served in the Washington D. C. environment.
4. officer in afloat billets
5. the enlisted respondents in the sample

Because the sample size and data points in the test instrument were large, the number of options available in analyzing the data was also extensive. As a result, the analysis was limited to the respondent groups noted above.

The following paragraphs address the data obtained from these groups on time to read, perception of need to reread the report memo, perception of comprehension of information and actual comprehension of information.

B. TIME TO READ

As stated in Section V, each survey participant was asked to time exactly how long it took for him to read the report memo. Therefore, a detailed analysis of reading time would determine if there was a statistically significant difference in reading time attributable to differences in writing style or to another survey moderating variable.

The table below shows the mean reading time by respondent category and by type of writing style.

TABLE 7.1

AVERAGE TIME TO READ BY STYLE (MIN:SEC)

	Low-Impact Style	High-Impact Style	Significance Level
All respondents	2:47	2:36	.19
Enlisted personnel	2:53	3:15	.28
All officers	2:43	2:15	.026
Officers with Washington D.C. experience	2:48	2:09	.013

There is a statistically significant difference in reading time between writing styles for officers, in general, and for those with Washington D. C. experience.

However, there was an unexpected difference in reading time of enlisted respondents. Enlisted personnel took more time to read the high impact report memo than the low impact one. This

anomaly may be due to sampling technique. More probably, it is because of the demographic differences between respondent categories noted in Section Five of this study. Here, demographics refers to educational, managerial, or other experiential characteristics that would contribute to slower reading time by enlisted respondents.

Next, reading time was broken out by respondent category to eliminate the skewing effect enlisted respondents had on the sample's mean time to read. Officers, in general, took 17.2% less time to read a high impact memo while officers with Washington experience took 23% less time to read the high impact communication.

C. PERCEPTION OF THE NEED TO REREAD

Survey respondents were asked if they felt a need to reread the report memo to better understand its content. Table 7.2 summarizes the mean responses to this survey question and the significance of this part of the analysis.

TABLE 7.2

PERCEPTION OF NEED TO REREAD THE MEMO REPORT
(MEAN SURVEY VALUES)

	High-Impact Style	Low-Impact Style	Significance Level
Officers	.10	.22	.019
Enlisted	.22	.23	.340
All	.14	.22	.065

By way of explanation of the mean values noted in Table 7.2, a no response was coded zero in the data entry scheme while yes responses received a value of one.

The results show that all survey respondents, and officers in particular, who read the high impact memo perceived that they better comprehended its content than those who read the low impact communication. This perception was significant for officers at the .019 level indicating a strong difference in perception of retention.

A review of the enlisted responses showed no significance in perception between the two styles. However, for the sample as a whole, respondents felt they better comprehended the high impact rather than the low impact style as demonstrated by the .065 significance level.

D. PERCEPTION OF RETENTION

As a further measure of reading comprehension, each respondent was asked to indicate, in rough terms, his perception of the amount of information contained in the report memo that he had retained. Possible responses were divided into seven percentage categories. The tables below display the results of responses to this question.

TABLE 7.3

PERCEPTION OF RETENTION

Percent Retained	High-Impact Style	Cum %	Low-Impact Style	Cum %
< 30%	0	0	1.1	1.1
30-40%	2.7	2.7	6.5	7.6
50-60%	18.3	21.0	15.8	23.4
61-70%	13.4	34.4	17.9	41.3
71-80%	33.3	67.7	33.2	74.5
81-90	25.8	93.5	18.5	93.0
> 90%	6.5	100.0	7.0	100.0

TABLE 7.4

PERCEPTION OF RETENTION BY CATEGORY

	Mean Response		
	High Impact	Low Impact	Significance Level
Enlisted	4.66	4.40	.32
Officers	4.90	4.68	.20
Officers with Washington D. C. experience	5.03	4.70	.19
All	4.80	4.60	.12

Values for perception of retention ranged from less than 30% to greater than 90% as shown in Table 7.3. These gradations were coded one to seven in the data entry scheme. Table 7.4 shows the mean values by style of memo report and category of respondent.

While Table 7.3 shows no apparent statistical significance between responses to the two writing styles, Table 7.4 shows a significant underlying difference in retention perception attributable to writing style. The mean values of retention

indicate that most respondents felt they retained between 60-80% of the memo report (see Appendix C for retention categories). While the mean scores displayed in Table 7.4 appear to be similar, overall, respondents indicated the high impact style produced better retention as demonstrated by a significance level of .12.

E. ACTUAL COMPREHENSION

Survey results thus far have shown that readers have taken significantly less time to read the high impact style, have found it easier to read, and perceive it more comprehendible than the low impact style. These characteristics are important because they can have far ranging effects on the financial implications of the reading costs associated with high and low impact communications. However, actual comprehension must be evaluated to determine if the high impact style delivers more than perceptual differences. For example, it would be a less than optimal if readers read the high impact style faster and perceived it as easier to comprehend but, in fact, the low impact style produced greater actual comprehension. Therefore, the paragraphs below review findings on actual comprehension.

1. Comprehension by Style

Section V of this study described the comprehension portion of the survey that was provided to respondents. In addition, Appendix C contains the seven specific comprehension

questions provided in the survey. Table 7.5 breaks out survey results on comprehension by style and provides the basis for the discussion that follows.

TABLE 7.5

NUMBER OF CORRECT QUESTIONS BY STYLE

Question #	High Impact	%	Low Impact	%	Significance Level
1	163	87.2	122	65.2	.000
2	175	93.5	162	86.6	.022
3	158	84.5	147	78.6	.152
4	164	87.7	139	74.3	.000
5	107	57.2	106	56.7	.823
6	176	94.1	156	83.4	.001
7	103	55.0	44	23.5	.000
Total	1046	80.0	876	67.0	.000

Table 7.5 shows that there is a significant difference in overall comprehension between styles for all respondents. Only questions number 3 and 5 showed no reasonable statistically significant difference in comprehension because of differences in style. The remaining five questions showed significant differences at very low significance levels (.000 - .022).

Of particular significance is the difference in respondent answers to the first comprehension question in the survey. The first question was designed to determine if the respondent understood the purpose of the memo. As shown above those who read the high impact style memo answered this question correctly significantly more often than those who read the low

impact style memo. This difference is particularly important because the minimum information any reader should receive from a correspondence is its purpose.

Furthermore, respondents who don't understand a message's purpose have no context for understanding the remainder of the information in the memo. This portion of the analysis indicates that readers not only perceive greater comprehension when reading the high impact style but they actually demonstrate a dramatic statistically significant increase in comprehension. As noted above this factor will have an important affect on the financial implications of style discussed in a later section.

2. Comprehension by Respondent Category

This section evaluates differences in comprehension between the two writing styles by respondent category to determine if significant statistical differences exist between the major groups who participated in the survey. Table 7.6 shows the significance levels by comprehension question attained by each group.

TABLE 7.6

SIGNIFICANCE LEVEL BY GROUP

Question #	All	All Officers	Officers with D. C. Experience	Afloat Officers	Enlisted Respondents
1	.000	.000	.020	.000	.070
2	.022	.050	.090	.101	.150
3	.152	.039	.340	.073	.870
4	.000	.000	.001	.002	.250
5	.823	.044	.041	.013	.020
6	.001	.036	.430	.042	.000
7	.000	.000	.010	.000	.004

Table 7.6 shows that the "All Officers" category exhibits a greater degree of attained significance in comprehension between the two styles than any other group. This table also shows that in most cases enlisted responses to the comprehension questions
pulled down the overall significance level of the sample. Again, this is probably due to the environmental, experiential, or educational differences between groups.

3. Comprehension Summary

Various tests of independence and variance were performed to confirm the existence of the differences in comprehension between the high and low impact writing style. Each of these tests proved conclusively that there is a definite increase in comprehension realized through use of the high impact communication style. In addition, Officers, by virtue of a number of moderating variables, such as environment, routine, education, and others, demonstrate an even greater degree of comprehension of the high impact over the low impact style, than the overall sample population.

F. CONCLUSIONS

This section analyzed three key dependent variables of the study. It showed that the high impact style, because of its logical organization pattern, takes less time to read than the low impact style. It also showed that perception of comprehension, as well as, actual comprehension are demonstrably greater when the high impact style is employed. The obvious conclusion

is that bottom line performance of an organization will be enhanced by using the high impact writing style. The degree of this impact will be discussed in section IX. The next section discusses the attributes that survey respondents ascribed to the authors of the two memo reports.

VIII. ANALYSIS OF READER PERCEPTIONS

A. OVERVIEW

This chapter examines the perceptions that readers of both high and low impact memo reports had of the writer of the communications. The chapter reports the respondents' placements of the 20 bi-polar adjectives on the 7 point Likert scale after they have read either the high or low impact report. Relatively basic statistical tools such as means and T-tests are used to assess the significance of the data. The analysis will be limited to three groups of survey respondents: all survey respondents, all officers, and officers based in Washington DC.

B. LIKERT RANKINGS

The responses obtained from the Reader Response Instrument were surprising. Survey participants responding to the high and low impact reports did not seem to be as greatly affected by the style of the reports as originally anticipated. Their responses to the Likert items indicated that their perceptions of the writer were somewhat different from the responses that the high and low impact styles are theoretically expected to trigger.

To simplify discussion, this section only focusses on key bi-polar variables. Furthermore, all Likert items in which there was a significant difference at the .10 level, or less, will also be discussed. Appendix F contains a listing of the bi-polar variables discussed below.

1. Forceful-Passive

Respondents to both the high and low impact memo reports rated both documents as somewhat forceful (3.28 high impact and 3.20 low impact). In fact, the low impact report was rated more forceful (3.20) than the high-impact report (3.28).

These responses are surprising for several reasons. Although "forcefulness" is obviously a psychological construct that may not have obvious manifestations in a writer's word choice, sentence structure, and organization of information, the stylistic characteristics of the high impact style feature syntactic patterns and word choice that enable the reader to quickly reach closure on a sentence and paragraph. Furthermore, this style mirrors ordinary, straightforward conversation. One would expect a style that quickly and efficiently delivers information to the reader and to a large extent mirrors spoken language to be seen as more forceful than the low impact style whose syntactic characteristics result in delayed semantic closure and reflect formal, "learned" language that is rarely heard in ordinary conversation. Furthermore, there is a tradition dating back to the Greeks that the high-impact style, called a "Spartan Style" then, reflects vigor and was to be used by men of action to motivate action.

Neither officers in general nor officers stationed in Washington perceived the writer of high-impact report as being more or less forceful than the writer of the low-impact report.

The T-tests revealed no statistically significant differences in means between either groups' perceptions of both memo reports. Perhaps respondents viewed "forcefulness" as a positive quality and may have responded to the connotations of the word rather than the perception of the writer as a result of his writing style.

2. Personal-Impersonal

Respondents classified both the high and low impact style as being "somewhat personal" (2.8 mean for the high impact report and a 3.2 mean for the low-impact one). This outcome is ironic considering that the low-impact style lacks the first and second person personal pronouns, active constructions, and the familiar language that usually results in a perception of decreased distance between the writer and the reader.

Although all respondents and all officers viewed both reports as personal, a significant statistical difference did exist at the .01 level between both groups' perceptions of the relative "personalness" of the writer. The "all respondent" and the "all officers" groups viewed the high-impact report as being more personal than the low-impact one. This result suggests that the stylistic features of the high-impact document did have some affect on the perceptions of these two groups. However, the Washington DC based officers responses to both reports revealed no statistically different perceptions of personalness in the writer.

3. Precise-Imprecise, Decisive-Indecisive, and Strong-Weak

One would expect that the writer of the high impact report would be perceived as more precise, decisive, and strong than the writer of the low-impact one. The high impact report's short, precise sentences, active verbs, and use of headings and lists are believed to convey a vigor that would affect the readers of this style. However, the results do not bear out this assumption. Respondents from all groups tested viewed both the high and low-impact documents as equally precise, decisive, and strong. In fact, the mean scores for these items clustered between 2.6 and 2.78. Consequently, there existed no significant statistical differences in respondents' perceptions of the writer of the high and low impact reports.

4. Confident-Insecure

Although respondents rated writers of both reports high in terms of confidence (2.02 and 2.27 respectively), respondents in general perceived the writer of the high-impact document as being more confident (at the .03 level of significance) than the low impact writer. However, this difference does not hold true of officers in general and officers assigned to Washington D.C. commands.

5. Aloof-Friendly

T-tests indicated statistically significant differences (at the .01 level) in perceived friendliness to the writer of both reports in the all respondents and all officer categories.

Although both groups perceived the writer of the high and low impact reports as being "somewhat friendly," the high-impact writer was seen as being more friendly than the low-impact writer. This result is somewhat surprising considering that there was no significant statistical difference between perceptions of personalness. However, the use of first and second person personal pronouns and concrete language in the high-impact report may have triggered this difference in response.

6. Independent-Conforming

All respondents viewed the writer of the high and low impact reports as somewhat independent. However, respondents to the low-impact report had almost a neutral (3.64) response to this bipolar variable.

At the .05 level there was a significant difference between the "all respondents" groups' reactions to the high and low impact documents. The writer of the low-impact document was perceived as being less independent, or more conforming, than the writer of the high-impact report. However, a significant difference in perception did not exist with the all officers group (.13 level of significance) or the Washington D.C. group.

7. Open-Guarded, Inflexible-Flexible, Sensitive-Insensitive

Significant differences at the .01 existed between all group responses to these three bi-polar variables. All groups perceived the writer of the high-impact document as more open,

flexible, and sensitive than the writer of the low-impact one. Appendix F lists the means and the T-test results.

These differences were expected considering the personal nature of the high-impact style and the conversational language that may have made the writer seem more accessible to the reader.

8. Clear Thinking-Fuzzy Thinking, Inefficient-Efficient

Respondents viewed writers of both the high and low impact styles as clear-thinking and somewhat efficient. However, a significant difference exists at the .10 level in the relative degree of "clear-thinking" and "efficiency" associated with the writers of both documents. The writer of the high-impact report was seen as more clear thinking and more efficient than the low-impact report writer.

This difference was expected because the high-impact report is linguistically and organizationally more efficient in communicating information than the low-impact report. The analysis of communication efficiency and comprehension in section VII supports this assertion. Furthermore, since the high-impact report is indeed "clearer," e.g. more comprehensible, than the low-impact document, one would reasonably expect that the attributes which exist in the document would be perceived in the writer of the document. However, the relatively small degree of difference in perceived efficiency and clear thinking between the writer of the high and low impact report was surprising,

considering the survey results discussed in section VII and the reports' significantly different linguistic and organizational characteristics. Obviously other factors are affecting reader response.

9. Threatening-Non-Threatening

Respondents to both reports viewed the writer as non-threatening. However, there was a significant statistical difference at the .01 level in the all respondents and all officers groups in the degree of threat ascribed to the writer of the communications. Both groups viewed the high-impact writer as less threatening than the low-impact writer.

This response is interesting because it indicates that the faceless, bureaucratic style of the low-impact report may be perceived as somewhat more intimidating than the hard-hitting, personal characteristics of the high-impact style.

C. SUMMARY

All survey respondents, regardless of the style of report they read, chose variables that had positive linguistic connotations. In other words, respondents probably chose variables like forceful, personal, precise, decisive, strong, etc. because they viewed these attributes as positive traits. Consequently, survey results did not reveal extremely wide variations in reader response to the bi-polar adjectives.

However, despite survey respondents' skewing of responses because of their preference for variables with positive connotations, the data did reveal significant statistical

differences in respondents' reactions to the writer of the high and low impact reports. These differences may be attributed to the stylistic differences between the two reports. The most significant differences are outlined below:

1. Survey participants in the "all respondents" and "all officer" categories perceived the writer of the high impact report as more personal, friendly, and efficient than the writer of the low-impact one.
2. Survey participants in all three categories viewed the writer of the high-impact document as more open, flexible, sensitive, and clear than the writer of the low-impact report.
3. Survey participants in the all respondents category perceived the writer of the high-impact report as more confident and independent that the writer of the low-impact report.

IX. FINANCIAL IMPLICATIONS

A. OVERVIEW

Previous sections analyzed perception, comprehension, and reading time differences that exist when readers are exposed to two distinct styles of writing. Section VII showed that survey respondents exposed to the high impact memo perceived a greater degree of retention and actually demonstrated greater comprehension than those who responded to the low impact style memo.

This section shifts focus away from statistical analysis to a discussion of the financial significance of three of the conclusions drawn in the earlier sections. Specifically, this section addresses cost savings associated with differentials in reading time, increased comprehension, and a reader's perception of an author and his message.

B. COMPREHENSION DIFFERENCES

The full impact and financial cost of a misunderstood communication clearly depends on the situation. Missing a scheduled meeting has less serious financial consequences to the Navy than a member's failure to comprehend a change in an operational or tactical procedure. The latter could result in damage to critical operational machinery, personnel casualty, or both. More seriously, failure to comprehend could result in the permanent loss of scarce Navy assets which would have an obvious, and dramatic financial impact.

The consequences can be significant if a reader believes that he has comprehended a message when, in reality, he has not. However another problem also exists. Additional costs are incurred when readers reread a communication because they have misunderstood the intended message during the first reading. If everyone rereads every communication, reading costs would increase and could conceivably double, which would be significant from a cost expenditure standpoint. The paragraphs below analyze these costs in relation to the survey. The analysis is then expanded to consider the Navy in a larger sense.

1. Survey Results

Sixty-one percent of those who felt a need to reread the survey report memo came from the low-impact style group while 39% were from the high-impact group. Nearly 60% more "low-impacters" felt the need to reread the report memo to attain adequate comprehension. Using the survey as an example, and assuming it takes only half the time to reread the report memo a second time, rereading costs for the low impact style would be 7% greater than that for the high impact style. A seven percent cost savings in rereading time is significant when considering the size of the Navy. Most naval communications begin at senior leadership levels but filter down until they are read at all levels, often down to the newest recruit. This means that the reading time and comprehension costs of over 560,000 people are involved.

Furthermore, the comprehension cost savings figure is based on reading a one-page, well written, logically developed memo. The cost differential between styles will become even more pronounced if the length of the memo is increased beyond the one page memo used in the survey. If the quality of writing in a communication is not as good as that of the survey memo report, average comprehension will decrease and reading time will increase, which will also increase the cost differential between styles. Lengthy messages and poor quality communications are common problems in naval communications as evidenced by the attention focussed on these problems in the Naval Correspondence Manual (Ref 4).

2. Weighted Average Survey Cost

Table 9.1 shows a breakdown by rank, approximate hourly rates, and style of memo report of those who participated in the survey. These hourly rates were calculated using basic military compensation figures derived from the Uniformed Services Almanac (Ref 23). Table 9.2 derives a weighted average cost that is used to make comparisons about the costs incurred in reading and comprehending the high and low impact style.

TABLE 9.1

RANK AND HOURLY WAGE RATES OF SURVEY PARTICIPANTS

	High-Impact Style		Low-Impact Style		
Rank	#	%	#	%	Hourly Rate($)
Captain	8	4.3	7	3.7	28.20
Commander	26	14.1	25	13.3	23.75
Lieutenant Commander	24	13.0	24	12.8	19.20
Lieutenant	41	22.2	58	30.9	15.80
Lieutenant Junior Grade	12	6.5	14	7.4	13.00
Ensign	10	5.4	13	6.9	9.50
Chief Petty Officer/Other	65	34.5	47	25.0	10.00
Totals	186	100.0	188	100.0	

TABLE 9.2

WEIGHTED AVERAGE COST (WAC) PER HOUR OF SURVEY PARTICIPANTS

Writing Style	WAC
High Impact	$ 15.37
Low Impact	$ 15.66
All Readers	$ 15.50

Forty-one of the low impact memo readers felt that they needed to reread the report memo to gain adequate comprehension while only 27 of the high impact readers felt the same. The "all readers" weighted average cost figure, and the one-half rereading

assumption were used to determine survey rereading cost (assumes that readers reread the report memo if they felt a need to, i.e. answered no to question 2 in the survey questionnaire). Costs to reread the high impact memo were $9.06 versus $14.83 for the low impact report memo. This represents a 39% savings in rereading time in the survey by using the high impact memo. This $5.76 savings may not seem impressive when compared with million dollar cost overruns. However, the savings are significant if you take a macro view of the Navy and its communication process. A short example will confirm this fact. Assume that everyone in the Navy was given a one-page high impact memo to read followed by a low impact memo. Also, assume that these readers were subject to the same rereading assumptions used above, with the additional proviso that the "all Navy" reading times for the two report memo types mirror those found in the survey. To perform this analysis, an All-Navy WAC of $11.00 was derived and used for the calculation versus the $15.50 WAC used to compare survey costs. This reduced WAC is part of a set of conservative analysis assumptions which are discussed in paragraph 2 below. The Navy-wide rereading cost differential resulting from this scenario would be roughly $12,200. Theoretically, this means that the Navy can save over $12,000 per memo in rereading time for every memo that is written in the high versus the low impact style. This is a significant cost savings by any reasonable standard.

C. READING TIME DIFFERENCES

The area with the most quantifiable cost savings is time to read. Section VII showed that Officers realized a 17% (23% for officers with Washington, D.C. experience) savings in reading time when given a high impact communication. Overall, survey respondents realized a 7% reduction in reading time, but as noted, this figure was reduced dramatically because of the anomaly in enlisted respondent reading times. The paragraphs below discuss the cost saving implications relative to the survey and the potential savings available Navy-wide if a high impact writing style is exclusively employed.

1. Survey Savings

The weighted average respondent cost was used to determine the cost of reading time for the report memo only. Multiplying the WAC by the amount of time it took all respondents in a particular group to read the report memo showed that it cost $135 for the low impact group to read their report memo while the cost for the high impact group was roughly $126. This difference represents a 7.0% savings for the high impact group (cost was based on equal sample sizes to avoid introducing bias). Note again, that this figure was dramatically reduced by the anomaly in enlisted respondents' reading times.

On the other hand, officers' cost to read showed more significant savings. Cost to read the low impact was $92.64 versus $69.75 or about 25-35% overall savings. This figure is somewhat overstated since 12 more officers participated in the

low impact group. However, when standardized, the high impact group still showed greater than a 17% cost savings in reading time.

2. Analysis Assumptions

The decreased cost to read the high impact memo report is significant in itself. However, the differences in reading costs become much more important when they are applied to the Navy as a whole. This section discusses the potential Navy-wide reading time savings that can attained if the Navy were to more forcefully adopt the high impact style of writing. The assumptions used in this analysis are as follows:

- Naval personnel work a five-day work week of eight hours a day and fifty weeks per year.
- The weighted average hourly cost, for officers and enlisted is reduced to $11.00 per hour. This figure was derived to represent an all Navy norm.
- The computed WAC for Naval Officers, service wide is $16.86.
- Special military pay, and variable housing allowance were included in the hourly rate average as a fixed percentage of basic military compensation.
- All messages/correspondence is assumed to be one page in length.

Obviously, these assumptions are conservative. Also, it is painfully apparent that not all communications are well written, particularly those written in a low impact, bureaucratic style. Therefore, the savings in reading time addressed below represent a deliberate understatement of the actual savings to be accrued by using a high impact style.

3. Navy-Wide Savings

Based on the assumptions above, four scenarios were constructed to determine how much the Navy could save if messages were written in a high rather than low impact style. These cases are described below:

- Case A: All Naval personnel read 20 one-page memos per week or 1000 per year.
- Case B: All Naval personnel read 50 one-page memos per week or 2500 per year.
- Case C: All Naval Officers read 50 one-page memos per week or 2500 per year.
- Case D: All Naval Officers read 100 one-page memos per week or 5000 per year.

a. Case A:

If all Naval personnel read, on the average, 1000 one-page, low impact memos each year, the cost in reading time to the American taxpayers would be roughly $286 million. In contrast the bill for reading the same number of high impact memos would be $19 million less.

b. Case B:

Still well within reason, this scenario assumes that all Naval personnel read 10 pages of communication each work day or a total of 2500 per year. Costs to read low impact communications would be $715 million versus $668 million for high impact communications--a difference of over $47 million per annum.

This equates to a savings, of roughly $34,000 for each typical one-page communication written in the high impact writing style under these scenario assumptions.

c. Case C:

Naval Officers read more communications each day than enlisted personnel because of the nature of their assignments and job descriptions. Message traffic at sea and in operational staff assignments can easily average over 50 communications daily. Naval Officers assigned to duty in staff billets in Washington, D.C. are also exposed to large amounts of daily reading. A briefing text for a single military program alone can exceed 100 pages of written material to be read and understood. Therefore, Case C is an ultra-conservative estimate of officers reading only 10 pages of correspondence per day. Nevertheless, the cost savings to be gained using this scenario are $8.94 million annually.

d. Case D:

Increasing the number of memos to 20 per day (5000 per year) shows that using the high impact style can save taxpayers upwards of $18 million per year. This assumption is well within reason when the volume of operational message traffic and the length of program briefing materials discussed above are considered.

e. Other Cases for Analysis:

This study was not intended to be a communication audit to determine the exact number of written pages read by various categories of naval personnel. However, the survey questionnaire did ask each respondent to approximate the percentage of time devoted to various communication channels during a typical week. As anticipated, survey results showed that officers devote more time to written communications than do enlisted personnel (19.3% versus. 12.2%). Officers assigned to Pentagon duty top the list of respondents with 21.3% of their time allocated to written tasks. The overall percentage of time accounted for in written communications by all respondents was 17%.

Comparative cost savings were calculated using this information and the assumptions above as a framework. The cost to the government for all naval personnel to spend 17% of their time in written communications (based on WAC) is $2.1 billion per year. As shown previously, a 7% cost reduction can be realized Navy-wide. Assuming that 50% of this time is spent on reading, this would equate to a $73 million savings annually by using a high impact writing style.

For officers who indicated that over 19% of their time was devoted to written communications a yearly savings of $38.2 million could be achieved,under the same 50% reading time assumption. This calculation assumes the same 17.2% reading time reduction by using a high impact style.

Section I noted that various studies indicate that between 60-75% of a manager's daily routine is spent communicating. It is reasonable to assume that one-third to one-half of this time is devoted to written communications. If the time devoted to written communications were split evenly between reading and writing; this would mean that upwards of 15-18.5% of a managers time would be spent reading communications. This lends credence to the conservative nature of the cost savings calculations derived above.

D. PERCEPTION DIFFERENCES

As noted, survey respondents felt that they retained/comprehended more of the information contained in the high impact memo than those who read the low impact memo. In addition, high impact readers perceived that they needed to reread the response memo, for comprehension, less often than those with the low impact memo.

It is difficult to identify a reasonable system to place a specific dollar value on the worth of positive perceptions nor is it within the scope of this study to develop such a system. However, it should be obvious that positive benefits will accrue if a reader has a favorable view of the author of a communication, as well as, the communication itself. If a reader approaches a communication with a positive, unbiased viewpoint he will be more receptive to the message contained within the communication. As a result, more dialogue will take place

between the players in the process. While not readily quantifiable, it would seem intuitive that the positive benefits realized as a result of this interactive process would lead to a direct increase in organizational efficiency and concomitant cost savings. Numerous organizational behavior studies and literature on management efficiency cite communications failings as a primary cause of waste and inefficiency. Therefore, it is reasonable to assume that an organization will receive significant financial benefits as a result of improving understanding by promoting "communications effectiveness."

E. CONCLUSIONS

This section evaluated the cost savings associated with reading time, comprehension and perceptional differentials attributable to the two writing styles presented to respondents in the survey questionnaire. This section demonstrated that the 7% reading time savings provided by the high impact memo report translates into a $12,000 savings for every high impact one-page memo that is read Navy-wide. The savings in reading time alone would make a Navy program to revitalize bottom-line communication a worthwhile management endeavor.

As shown, reading time savings associated with the high impact style ranged from 7% for all respondents to a high of 23% for those officers based in Washington, D. C. commands. The concomitant dollar savings, developed in the case analysis in this section, range from $17 million at the low end to a high of

$73 million. These savings are both significant and reasonable as they were derived from a set of conservative assumptions that were constructed to model the realities of Military compensation on one side and the amount of time spent by Naval personnel in reading typical communications on the other.

While this study did not address the specific cost savings that accompany a reader's positive perception of a communication and its author, it is apparent that these savings are also present more often when the high impact writing style is employed.

Finally, there is no doubt that some degree of dependence exists among the three cost saving variables of reading time, comprehension and retention. Therefore, the total cost savings the Navy can realize by more rigid adherence to the high impact writing style are not merely additive. However, it is reasonable to assume that these total savings, when summed, will be greater than the savings realized from any individual component noted above.

In short, the cost savings that can be realized from adopting the high impact writing style Navy-wide would be large enough to offset the costs for a substantial number of on-going Navy programs.

X. CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

This section summarizes the statistically significant findings of the last five sections of analysis. It highlights those conclusions that have a direct impact on the organizational and financial well-being of the United States Navy. This section also recommends ways to incorporate these findings into communication policies that will increase the overall efficiency and productivity of Naval personnel. Finally, this section addresses areas not covered in the analysis of the survey data which should be explored to support and enhance the value of this basic research.

B. CONCLUSIONS

This study was undertaken to determine if there was empirical confirmation to the "religion" of bottom-line writing advocated in the Navy Correspondence Manual (Ref 4). This topic was chosen because no studies that quantify cost savings attributable to writing style differences were found in the managerial communications or organizational behavior literature.

The study sought to determine if:

- A high-impact style communication was easier and quicker to read than a low-impact communication.
- Perception of and actual comprehension vary between communication styles.
- Differences exist in the areas above because of respondent categories.

- Attributes assigned by readers to the two styles differ.

The study showed that communication style has an affect on all the research questions.

1. Reading Time

Data analysis demonstrated that readers took less time to read the high impact rather than the low impact style memo report. The differences in reading time was statistically significant for all survey groups except for enlisted respondents where a survey anomaly appears to exist. The logical, organized pattern and stylistic characteristics of the high-impact memo report are the primary contributors to this reading time differential.

A reduction in reading time means that less dollars will be spent when the high-impact writing style is employed. This cost saving is important to any organization, but is particular germane to a large organization such as the Navy which is, by design, geographically dispersed and, therefore, hyper-dependent on written communication channels as well as other communication channels that do not enable face-to-face dialogue.

2. Perception of Comprehension and Rereading Time

The study also showed that readers perceived greater comprehension when exposed to the high-impact rather than the low-impact memo report. This perceptual difference also has important implications since it determines the additional costs associated with rereading time. The exact amount of time taken to reread a communication was assumed to be 50% of initial

reading time. This assumption was not empirically determined. However, rereading time, like initial time to read, will vary among readers and, therefore, could actually be greater than the 50% assumption. In any event, it is apparent that additional cost savings can be gained by employing a high-impact writing style Navy-wide.

3. Actual Comprehension

Perception of comprehension is important in as much as it is measure of the need to reread a communication and, therefore, rereading time. However, a more critical factor is the degree to which readers actually attain a greater degree of comprehension as a result of a particular writing style. Analysis results in this area were particularly significant. The high-impact survey respondents perceived and actually demonstrated significantly greater comprehension than did those who read the low-impact style. This fact is of critical importance. The author of every communication wants information conveyed to the intended audience. The more sensitive the communication the more important it is to insure the message is received and the more dramatic the consequences if this is not the case. The Navy operates daily in a tense, fast-paced environment with personnel and equipment that represent enormous capital investment. Therefore, inadequate comprehension of an operational or procedural communication can have a dramatic negative effect on equipment or personnel assets or even, if

taken to the extreme, on national defense posture. Suffice it to say that complete and accurate comprehension of a communication should be an imperative within the Navy.

4. Reader Perceptions of the Writer

As noted, it was not within the purview of this study to determine the economic benefits the Navy would realize if readers had a more positive perception of one communication style over another. In fact, changing a qualitative assessment, such as "clear-thinking" or "precise" into something quantitative like decreased reading time because of increased confidence in the writer, may be impossible. However, it is clear that a positive attitude toward a writer and his communication can influence the degree to which a reader can reduce the effect that internal bias will have on his assessment of the communication's message.

The results obtained from the Reader Response Instrument did not always reflect the degree of difference toward the writer of the high and low impact report as anticipated. This may have been caused by two factors:

1. Survey participants responded to the connotations of the bipolar adjectives rather than the style and the writer of the report.
2. Naval language customs and habits (a preference for a bureaucratic style) biased participant responses resulting in an unanticipated favorable reaction to the low-impact communication.

Many respondents chose adjectives with positive connotations in their reactions to both the writer of the high and low impact reports. However, various respondent groups did react differently to the writer of the different reports, as discussed in section VIII. In general the respondent groups had a more favorable reaction to the writer of the high-impact report than the writer of the low-impact one.

The all respondent group believed the writer of the high-impact report to be more confident, friendly, independent, open, flexible, sensitive, clear, efficient, and less threatening than the writer of the low-impact report. The all officers group felt that the writer of the high-impact report to be more friendly, flexible, sensitive, clear, efficient, unbiased, supportive, and less threatening than the low-impact report writer. Finally, the Washington D.C. officer group believed the high-impact report writer to be more open, flexible, sensitive, and clear.

It should be noted that these differences in attributes are based on mean score comparisons statistically significant at the .10 level.

5. Cost Savings

The cost savings that can be achieved through reduced reading and rereading time are significant. In general, the Navy can reduce reading costs by 7-23%, depending on reader category,

and by 7% for rereading costs. In addition, the savings through increased comprehension and, therefore, a decrease in misunderstanding "mishaps" can also be large.

As shown in section IX, the cost savings for the first two factors alone can run in the millions annually, even under conservative assumptions. Further, the synergistic cost saving effects of combining reduced reading and rereading time with an increase in comprehension and increased efficiency through more positive perceptions can add tremendously to the value of forcefully adopting the high-impact communication style as the Navy norm.

C. RECOMMENDATIONS

As mentioned, this study is the first to provide empirical evidence to support the doctrine of employing the high-impact style in the United States Navy. As such, additional research needs to be conducted to further develop the ideas contained in this thesis. The paragraphs below are recommended courses of follow-on study efforts.

1. Communications Audit

This study relied on the estimates of respondents and case analysis assumptions to determine the amount of time that Naval personnel devoted to written communications and more specifically, to reading. The study was not designed to be a communications audit. A follow-on effort to perform a

communications audit on a representative sample of Navy commands would be useful in that it would permit a more detailed quantification of the cost savings presented in this report.

2. Functional Group Review

Respondent groups were divided at macro levels in this thesis to evaluate the effect that the two writing styles had, in general, on large categories of Navy members. A study of how the variables interact when broken down at the micro level of (i.e. line versus staff) would be beneficial to determine where Navy efforts to improve written communications should be focused.

3. Analysis of Reader Attitude

Further research needs to be done to determine the extent that communication style affects a reader's perception of the writer. Researchers need to construct a model that describes the range of variables that affect a reader's image of a writer and the relative weights (or importance) of those variables.

4. Analysis of Naval Language Customs and Habits

To better account for the strong disposition to favor the low-impact style, an analysis of naval language customs is important. This analysis could not only define what those customs are but also determine the psychological disposition that accounts for those customs. Also, such an analysis would provide valuable information that could enable SECNAV to better engineer the adoption of the Correspondence Manual guidelines.

5. Dissemination of Information about Advantages of High Impact Writing

Officer training programs need to be established which explain the financial benefits to high-impact writing and the ways it aids retention of information. Merely distributing the Correspondence Manual is not enough.

APPENDIX A

MANAGEMENT CASE

SCENARIO

Please read carefully the following scenario. Try to put yourself in the position of the office manager described below.

Assume you're the office manager of a medium-size urban hospital. Although the hospital has a great deal of autonomy in its business operations, it is one of 27 hospitals owned and "run" by a health care management consortium whose administrative offices are located in Atlanta. Your chief responsibility is to insure that your 18-person office staff efficiently and accurately handles billing, insurance claims and payments, customer information requests, etc.

Your staff is made up primarily of married women with pre-school and school-age children. Most of the women live in the suburbs; consequently, they have to commute to work anywhere from 1/2 to 1-1/4 hours each morning in relatively heavy traffic. Some mornings your staff seems tense, irritable, and preoccupied with non job-related concerns. But you feel they basically get their jobs done. You have noticed, though, that absenteeism has increased on Mondays and Fridays. Although this high absenteeism rate has occasionally--several times a year--caused you to use a temporary employment service, you believe this inconvenience is to be expected when managing workers who are more interested in supplementing their families' income than developing a career.

The home office has recently instituted a new program to help improve administrative efficiency. Once a year the Atlanta home office intends to send an "advisor" from its Operations Department to take a look at its hospitals' office procedures. You don't feel threatened by the program or the advisor's visit because you believe you run a reasonably efficient department.

About a month ago the home office advisor, Bob Lowe, spent a day evaluating the operations and procedures of your office. He seemed like a reasonably nice guy who went about his job in a courteous and professional manner. At the end of the day, you briefly met with him to discuss his visit. He said, "things look pretty good," which was about what you expected. He added that he had gathered a lot of information from talking to your staff, but he needed some time to sort through his notes. He also said that in about two weeks he would send you a report detailing his observations and suggestions. He concluded by assuring you he would recommend, not order, any possible changes in office operations and procedures.

This morning Lowe's report arrived (see next page). You're curious about what he has to say.

APPENDIX B

LOW IMPACT MEMO REPORT

Please read the following memo the same way you would normally read a communication resulting from the previous scenario. Try to respond to the memo from the viewpoint of the office manager.

TO: XXXX
FROM: Bob Lowe, Operations Advisor
Subject: Improving Office Operations and Morale

Visiting the XYZ office last month and talking with you and your staff proved to be an enjoyable experience. Several suggestions, though, can be made to improve office productivity and morale. Recently, flex-time scheduling has been introduced for use in the billing and receiving departments of many hospitals. As is suggested by the term flex-time, staff members are given the choice of determining when they commence and terminate work rather than being confined to a rigid 9 AM to 5 PM schedule. It has been determined that hospitals are a particularly good environment to implement this plan because they remain open 24 hours per day. However, the following ground rules are needed so that the flex-time plan will run smoothly.

The clerical staff should be allowed to work their 8 hours any time between 6 AM and 9 PM; in addition, the staff should be given the opportunity to segment their 8 hour shifts into 4 hour blocks. Four clerical staff members must be required to be on duty from 8 AM to 5 PM to handle internal and external information requests. The scheduling arrangements needed to handle this requirement should be made by the staff. A sign-up sheet should be provided so that the clerical staff can log their hours. Finally, the flex-time schedule must be adopted by yourself so as to reflect support of the plan and to insure that all workers are supervised during the course of the work week.

Although flex-time scheduling will result in slightly increased office heating, cooling, and lighting costs, office morale will be improved and productivity will increase because starting and quitting times can be determined by individual staff members. For example, if workers choose to start earlier or later than the traditional 9 AM starting time, rush hour traffic can be avoided and thus greater productivity and improved morale will be realized because staff members will arrive at work in a better frame of mind and thus be more cooperative with each other. Furthermore, the staff will be given the sense by flex-time that they have greater autonomy over their jobs rather than being controlled by their work environment. Greater commitment to their jobs, the department, and the hospital will be the result of this feeling of staff autonomy; also, Monday and Friday absenteeism rates will decline, thus improving office efficiency and productivity.

Finally, the transformation to flex-time will demonstrate to staff members your belief in their ability to handle responsibility, and less close supervision will indicate to them that management has confidence in their ability to do their jobs. With the above-mentioned facts in mind, it is recommended that a flex-time schedule be adopted for your clerical staff. I can be reached at 404-626-4129 if clarification is needed about the theory behind or actual implementation of flex-time scheduling. I will telephone in about two weeks to determine your reaction to the plan.

PLEASE FILL OUT THE COMPREHENSION QUESTIONS ON THE NEXT PAGE

Please read the following memo the same way you would normally read a communication resulting from the previous scenario. Try to respond to the memo from the viewpoint of the office manager.

TO: XXXX
FROM: Bob Lowe, Operations Advisor
Subject: Improving Office Operations and Morale

I enjoyed visiting your office last month and talking with you and your staff. I have come up with a plan to improve office productivity and morale. I recommend you adopt a flex-time work schedule for you and your clerical staff. Let me outline how the plan works and why it will improve productivity and morale.

HOW FLEX-TIME WORKS

Flex-time scheduling lets your staff choose a wide range of starting and quitting times rather than locking them into a rigid 9-5 schedule. Because hospitals are open 24 hours, you can easily implement the plan. But you do need to set up some ground rules so that flex-time runs smoothly. Here's what I suggest.

1. Allow your staff to put in their 8 hours between 6 AM and 9 PM.

2. Enable them to break their 8 hour shifts into 4 hour blocks.

3. Require that at least 4 staff members be in the office between 8 AM and 5 PM to handle phone calls and information requests. Let your staff make the arrangements to meet this requirement.

4. Provide a sign-in sheet so that your staff can log its hours.

5. Adopt for yourself a flex-time schedule. By doing so you can show your staff you believe in the plan. Also, you can "manage" all your workers during the course of a week

IMPROVED MORALE AND PRODUCTIVITY

Flex-time will slightly increase office heating, cooling, and lighting costs. But I'm certain office morale will improve and productivity will increase. For example, if staff members choose to start earlier or later than 9 AM, they can avoid rush hour traffic. Consequently, they should arrive at work in a better frame of mind and, as a result, be more productive and cooperative with each other.

Furthermore, flex-time will give your staff the feeling that they have some control over their jobs, not that their jobs control them. This feeling of control will result in greater commitment to their jobs, the department, and the hospital. I'm sure you'll find this renewed commitment will translate into decreased absenteeism on Mondays and Fridays. As a result, your office will be more efficient and productive.

Finally, your switch to flex-time will show your staff you believe they can handle responsibility. By not being in the office to supervise your staff every hour of the day, you're clearly indicating that you trust them and have confidence that they can get the job done.

SUMMARY

I've provided you with only an overview of how flex-time works and why I am confident it will be effective in your office. Of course there are still many details to work out. I'm certain you can fine-tune the program to meet your needs.

You can call me at 404-626-4129 if you want more information about the theory and practice of flex-time scheduling. I'll call you in two weeks to get your reaction to the plan.

PLEASE FILL OUT THE COMPREHENSION QUESTIONS ON THE NEXT PAGE

APPENDIX C

Comprehension Questions

Please answer the following questions. Do not refer to the memo you have just read to help you with your answers.

1. Approximately how long did it take you to read the memo?

_____ minutes _____ seconds

2. Did you feel you needed to reread the memo to satisfactorily understand its purpose and content?

Yes _____ No _____

3. What percentage of the information do you feel you retained after one reading of the memo?

Less than 30% _____
30-40% _____
50-60% _____
60-70% _____
70-80% _____
80-90% _____
90-100% _____

4. Please answer the following questions about the memo. Be as concise as possible.

A. What is the purpose of the memo?

B. Why are hospitals a good place to implement the plan?

C. Between what hours can staff members put in their 8 hour shifts?

D. How will staff members log their hours?

E. What is the major disadvantage of the plan?

F. What are two specific advantages of the plan?

G. Why must at least four staff members be in the office between 8 AM and 5 PM?

AFTER COMPLETING THIS SECTION OF THE SURVEY, PLEASE RETURN IT TO THE PROCTOR. NEXT REREAD THE MEMO AND THEN COMPLETE THE READER RESPONSE INSTRUMENT.

READER RESPONSE INSTRUMENT

Please indicate your assumptions about the *writer* of the memo you've just read by responding to each of the twenty pairs of contrasting items listed on the next page. Place an "X" near the item that best characterizes your impressions of, or feelings toward the writer as a result of your reading the previous memo.

For example, if after reading the memo you feel the writer is

A. VERY FORCEFUL ..... you would check # 1;

B. FORCEFUL ..... you would check # 2;

C. SOMEWHAT FORCEFUL ..... you would check # 3;

D. NEUTRAL ..... you would check # 4;

E. SOMEWHAT PASSIVE ..... you would check # 5;

F. PASSIVE ..... you would check # 6;

G. VERY PASSIVE ..... you would check # 7;

Use this guideline to respond to each item on the next page.

1.)	FORCEFUL	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	PASSIVE
2.)	PERSONAL	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	IMPERSONAL
3.)	PRECISE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	IMPRECISE
4.)	UNCONVINCING	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	PERSUASIVE
5.)	DECISIVE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	HESITANT
6.)	TRUSTWORTHY	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	UNTRUSTWORTHY
7.)	STRONG	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	WEAK
8.)	INSINCERE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	SINCERE
9.)	COOPERATIVE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	UNCOOPERATIVE
10.)	CONFIDENT	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	INSECURE
11.)	ALOOF	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	FRIENDLY
12.)	INDEPENDENT	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	CONFORMING
13.)	OPEN	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	GUARDED
14.)	INFLEXIBLE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	FLEXIBLE
15.)	SENSITIVE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	INSENSITIVE
16.)	CLEAR-THINKING	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	FUZZY-THINKING
17.)	INEFFICIENT	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	EFFICIENT
18.)	UNBIASED	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	BIASED
19.)	SUPPORTIVE	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	ANTAGONISTIC
20.)	THREATENING	___ 1	___ 2	___ 3	___ 4	___ 5	___ 6	___ 7	NON-THREATENING

PLEASE FILL OUT THE BACKGROUND INFORMATION SECTION ON THE NEXT PAGE

APPENDIX E

BACKGROUND INFORMATION

Please answer the following questions by checking the category that best describes your situation. Your responses will be kept confidential. However, the sample group's responses will be summarized in various statistical forms.

1. What is your age group?

   Under 30 _____ 41-50 _____

   31-40 _____ Over 50 _____

2. What is your gender?

   Male _____ Female _____

3. What is your education background?

   High School _____ Some Graduate Work _____

   Some College _____ Graduate Degree _____

   College Degree _____

4. In what area did you receive most of your college training?

   Business _____ Sciences _____

   Humanities _____ Social Sciences _____

   Engineering _____ Education _____

   Non Applicable _____

5. Through what path did you enter Naval Service?

   ROTC _____ OCS _____

   NESEP _____ Naval Academy _____

   Enlisted _____ Other _____

6. How many years of service do you have?

   1-4 _____ 21-25 _____

   5-10 _____ 26-30 _____

   11-16 _____ Over 30 _____

   16-20 _____

7. What is your rank?

Captain _____	Lieutenant Junior Grade _____
Commander _____	Ensign _____
Lieutenant Commander _____	Chief Petty Officer _____
Lieutenant _____	Other _____

8. If you are an officer, what is your designator? _____
9. Is your current job?

Afloat _____

Washington, D.C. _____

Other Shore Staff _____

10. How many personnel (officers and enlisted) are there in your present command?

Under 250 _____

251-500 _____

501-1000 _____

11. What is your job classification at your present command?

Commanding Officer _____	Staff Assistant _____
Executive Officer _____	Administrative Assistant _____
Department Head _____	Analyst/Action Officer _____
Division Officer _____	First Line Supervisor (CPO) _____

12. Which functional group are you currently working in?

Engineering _____	Weapons _____
Operations _____	Supply _____
Legal _____	Other _____

13. In which of the functional groups listed above have you spent most of your time? _____

How many years? _____

14. Have you had a tour of duty in Washington, D.C., or in a major shore staff?

Yes _____

No _____

APPENDIX F

LIKERT ITEM CALULATIONS

The table below provides the individual calculations that support the analysis contained in section VIII. The table displays the mean responses ascribed by survey respondents to the twenty bi-polar adjectives listed in Appendix D. In addition, the table breaks out these responses by memo report type (i.e. high-impact/low-impact) and reports the attained significance level by respondent category.

TABLE F.1

LIKERT ITEM CALCULATIONS

	Mean Response		Significant Level By Respondent Category		
	High-Impact	Low-Impact	All	All Officers	Washington D.C. Officers
FORCEFUL	3.28	3.20	.47	.64	.15
PERSONAL	2.80	3.20	.002	.002	.30
PRECISE	2.68	2.60	.33	.32	.63
UNCONVINCING	5.08	5.03	.75	.36	.21
DECISIVE	2.65	2.76	.41	.59	.79
TRUST	2.73	2.78	.68	.20	.47
STRONG	2.72	2.77	.70	.29	.48
INSINCERE	5.60	5.40	.14	.38	.11
COOPERATIVE	2.47	2.65	.19	.47	.92
CONFIDENT	2.02	2.27	.03	.14	.94
ALOOF	5.37	4.98	.008	.01	.88
INDEPENDENT	3.36	3.64	.05	.13	.68
OPEN	2.70	3.03	.01	.01	.10
INFLEXIBLE	5.10	4.60	.000	.000	.005
SENSITIVE	2.90	3.20	.006	.000	.024
CLEAR	2.30	2.46	.10	.03	.084
INEFFICIENT	5.60	5.30	.02	.10	.65
UNBIASED	4.10	4.30	.12	.03	.79
SUPPORTIVE	2.60	2.70	.18	.09	.28
THREATENING	5.20	4.80	.009	.01	.13

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